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TECHNICAL MEMORANDUM NO. 74-12

LWL GRIDS FOR PRODUCT IMPROVEMENT TEST
OF LWL FUEL TABLET

by

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Environment and Survival Branch

April 1974

Technical Memorandum for Period
5 June 1973 - 7 September 1973

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19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Grids, Heating Fuel Tablets Heating Combat Rations		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The US Army Land Warfare Laboratory developed an experimental heat tablet of acetal resin for heating combat rations. To use this new fuel source efficiently and provide a support for the ration can or canteen to be heated, the LWL grid was developed. The grid was designed to give a one inch standoff between the ration can stove and the food can or canteen cup being heated. Field evaluations of the grid were generally favorable, although some comments by the users indicated the standoff height of one inch was too much. The CON'T		

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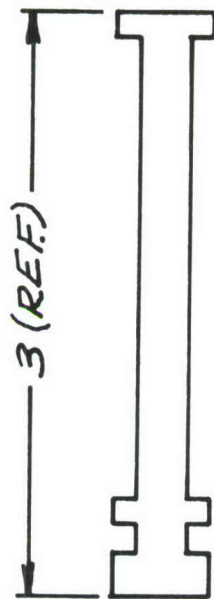
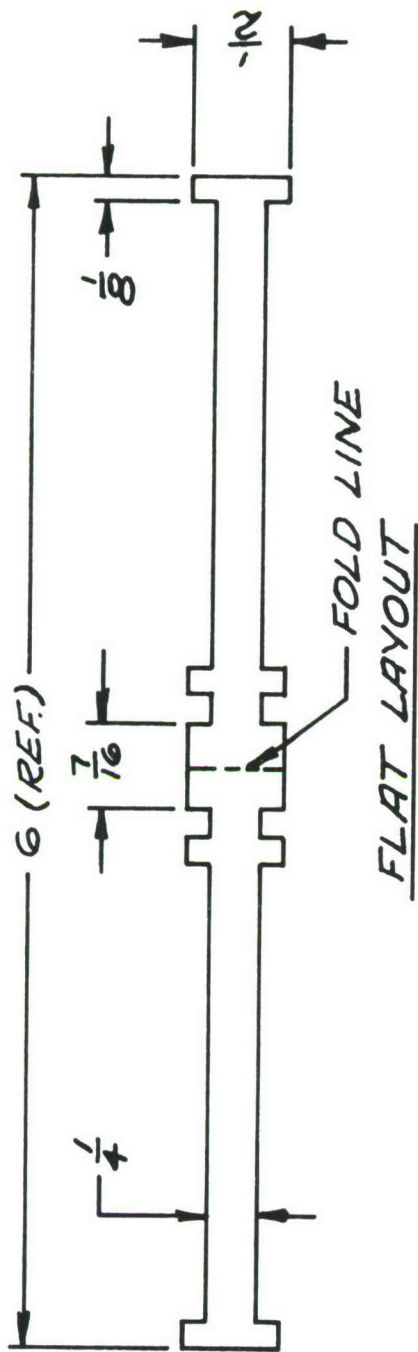
US Army Land Warfare Laboratory was asked to provide LWL fuel tablets and grids for a scheduled Product Improvement Test by US Army Test and Evaluation Command. Since a large quantity of grids would have to be procured, a decision was made to modify the grid and reduce the standoff height from one inch to one quarter inch. This report describes the modified LWL grid. More detailed background is available in Technical Memorandum No. 71-02, "Improved Ration Heater and Fuel Tablet."

AD-780023

DESCRIPTION

A method was developed by USALWL where a combat ration can could be converted to a serviceable ration stove by use of a single grid. The grid was developed to be used with the LWL fuel tablet, although Trioxane fuel can also be substituted.

The grid is fabricated from C1018/C1020 mild steel, .0239 inches thick. The grid is die stamped to the configuration shown in Figure 1, then folded flat for ease of packaging and carrying. To use, the open end of the grid is spread to conform to the diameter of the ration can stove. Appropriate notching and tabs provide a stable positioning of the grid on the can stove to support a canteen cup or a ration can of food. The one quarter inch stand-off between the stove and the canteen cup permits a flow of air to the fuel for combustion and acts as a chimney, to release the products of combustion. This grid is essentially a throw-away item but can be reused a number of times. Directions on method of using the grid are shown in Figure 2.



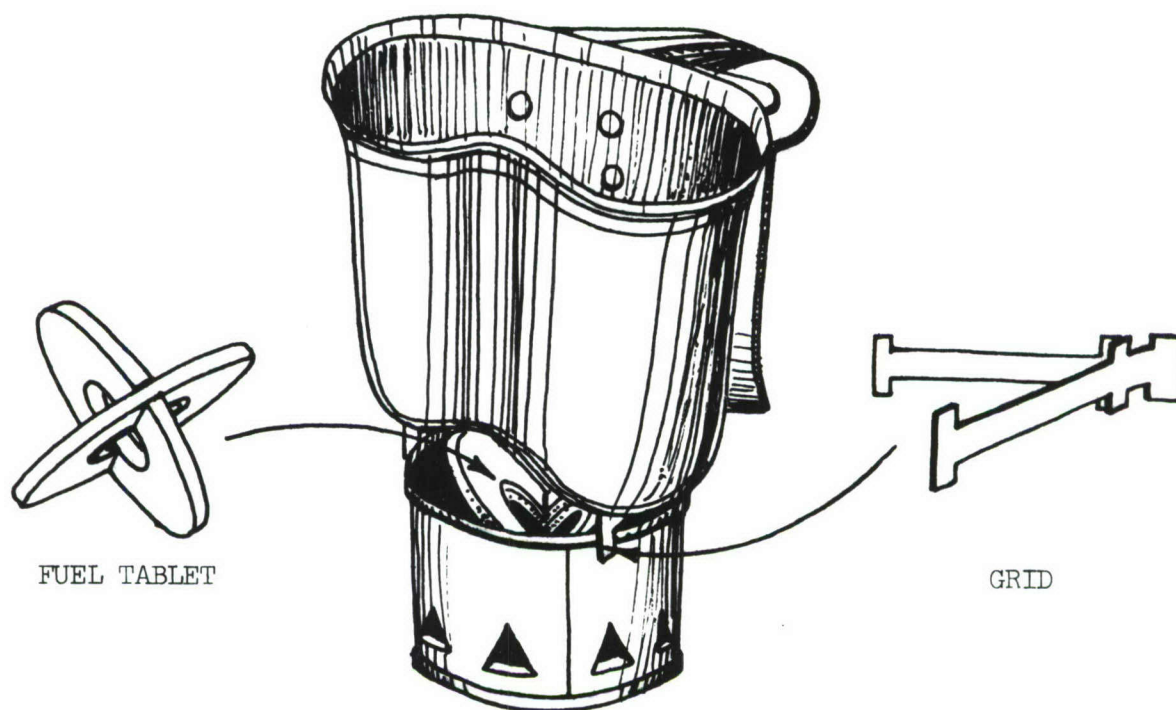
FOLDED

GRID

FIG. 1

Figure 1. Grid

LWL FUEL TABLET



DIRECTIONS

Cut holes in small "C" ration can as shown, using can opener, knife, or bayonet. Holes must be approximately 1/2 inch above the bottom of the can to retain melted fuel. Place fuel unit (two tablets joined to form an X shape) in can, light a match and drop into the hole in the center of the tablets. Open grid and place on can as shown in diagram. It requires 3 to 4 minutes for the fuel to reach a maximum burning temperature and the fuel will continue to burn for another 7 to 10 minutes, depending upon wind conditions.

Aluminum foil, shaped to form a dish capable of retaining the melted fuel, can be used in place of the ration can.

NOTE: The fuel tablet will not flare up and therefore will not burn the user's hand.

Figure 2. Directions for Use of Grid

PRODUCT IMPROVEMENT TEST

At the request of US Army Natick Laboratories, the US Army Test and Evaluation Command (TECOM) scheduled a Product Improvement Test of Fuel Tablet and Grid, TECOM Project No. 8-EI-215-000-001. Testing began 30 September 1973 and is currently being conducted at the US Army Arctic Test Center, the US Army Tropic Test Center, and by the US Army Infantry Board, Ft Benning, Georgia.

The US Army Land Warfare Laboratory supported this effort by providing 50,000 LWL fuel tablets and 5,500 LWL grids. Results will not be available until completion of the Product Improvement Tests.

CONCLUSION

The Product Improvement Tests are still being conducted by TECOM. See TECOM Report for Project No. 8-EI-215-000-001 for results of the Tests.

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